In the claims:

1.(Previously presented) A method for processing bit symbols
generated by a data source, in particular a video, still image
or audio source, comprising:

    constructing a plurality of bit-planes using the bit
        symbols generated by the data source, each bit-plane
        comprising a plurality of bit-plane symbols;

    scanning the bit-plane symbols of each bit-plane to
        generate a binary string of bit-plane symbols;

    encoding the binary string of the bit-plane symbols using a
        statistical model, wherein the statistical model is based
        on statistical properties of a Laplacian probability
        distribution function which characterizes the data
        source, wherein the Laplacian probability distribution
        function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

    wherein σ is the standard deviation of the Laplacian
        probability distribution function.

2.(previously presented) The method according to claim 1,
wherein the encoding of the binary string of bit-plane symbols
is performed by an entropy encoder.

3.(previously presented) The method according to claim 2,
wherein an arithmetic encoder is used as the entropy encoder.

4. (previously presented)   The method according to claim 1,
wherein a probability assignment to each bit-plane symbol is

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determined based on the Laplacian probability distribution function and is used to determine the statistical model for encoding the binary string of bit-plane symbols.

5. (currently amended)   The method according to claim 4, wherein the probability assignment to the bit-plane symbol is ~~based on~~ …determined by

$$P_j = 1 - \left(1 + e^{-2^j \sqrt{\frac{2}{\sigma^2}}}\right)^{-1} \qquad , \; j = M\text{-}1, \; M\text{-}2, \; \dots$$

wherein

P_j is the probability assignment to the bit-plane symbol, and

j is the bit-plane.

6. (previously presented)   The method according to claim 1, wherein a probability assignment to each bit-plane symbol is determined based on previously encoded bit-plane symbols.

7. (previously presented)   The method according to claim 6, wherein the probability assignment to the bit-plane symbol is determined by

$$P_j = \frac{N_a}{N} P_j^{N_a} + \left(1 - \frac{N_a}{N}\right) P_j^{ML}$$

wherein

P_j is the probability assignment to the current bit-plane symbol,

j is the bit-plane,

N_a is the number of bit-plane symbols coded until the end of the previous bit-plane,

N is the number of bit-plane symbols coded until the current bit-plane symbol,

P_j^{Na} is the estimation of P_j after observing N_a bit-plane symbols,

P_j^{ML} is the maximum likelihood estimation of P_j for the current bit-plane and is defined by

$$P_j^{ML} = \frac{\sum_{j=1}^{N-N_a} b_{i,j}}{N - N_a}$$

wherein $b_{i,j}$ is the bit-plane symbol.

8. (previously presented)   The method according to claim 7, wherein the estimation of P_j after observing N_a bit-plane symbols, P_j^{Na}, is updated by

$$P_j^{N_a} = \frac{\sqrt{P_{j+1}^{N_a}}}{\sqrt{1 - P_{j+1}^{N_a}} + \sqrt{P_{j+1}^{N_a}}}$$

wherein $P_{j+1}^{N_a}$ is the estimation of P_j from the previous bit-plane.

9. (cancelled)

10. (cancelled)

11.(Previously presented)   The method according to claim 4, wherein the probability assignment to the bit-plane is determined by

$$Q_j^L = \begin{cases} \dfrac{1}{1+2^{2^{j-L}}}, j \geq L \\ \dfrac{1}{2}, j < L \end{cases}$$

wherein

Q_j^L is the probability assignment of the jth bit-plane,

L is the integer representing a predetermined optimal bit-plane from the plurality of constructed bit-planes, and

j is the bit-plane.

12.(Previously presented)   The method according to claim 4, wherein the probability assignment to the bit-plane is determined by

$$Q_j^L = \begin{cases} \dfrac{1}{2^{2^{j-L}}}, j \geq L \\ \dfrac{1}{2}, j < L \end{cases}$$

wherein

Q_j^L is the probability assignment of the jth bit-plane,

L is the integer representing a predetermined optimal bit-plane from the plurality of constructed bit-planes, and

j is the bit-plane.

13.(currently amended)   A method for decoding an encoded binary string of bit-plane symbols, the encoded binary string of bit-plane symbols being obtained from bit symbols generated by a data source, in particular a video, still image or audio source, the method comprising:

decoding the encoded binary string of bit-plane symbols using a further statistical model to generate a further binary string of bit-plane symbols,

re-constructing a plurality of bit-planes comprising the bit-plane symbols using the further binary string of bit-plane symbols, producing a decoded data[,] representing the bit symbols generated by the data source, wherein the decoded data is output as the video, the still image or the audio,

wherein the further statistical model is based on statistical properties of a Laplacian probability distribution function which characterizes the decoded data, wherein the Laplacian probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

wherein σ is the standard deviation of the Laplacian probability distribution function.

14. (cancelled).

15. (cancelled).

16. (cancelled).

17.(Original) A device for processing bit symbols generated by a data source, in particular a video, still image or audio source, comprising:

> a bit-plane construction unit for constructing a plurality of bit-planes from the data source, each bit-plane comprising a plurality of bit-plane symbols, and scanning the bit-plane symbols of each bit-plane to generate a binary string of bit-plane symbols,

> a statistical model unit for providing statistical information based on statistical properties of a Laplacian probability distribution function which characterizes the data source, wherein the Laplacian probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

> wherein σ is the standard deviation of the Laplacian probability distribution function and

> an encoding unit for encoding the binary string of bit-plane symbols based on the statistical information provided by the statistical model unit.

18. (Currently amended) A computer readable medium, having a program recorded thereon, wherein the program is to make the computer execute a procedure for processing bit symbols generated by a data source, in particular a video, still image or audio source, the procedure comprising the following steps:

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constructing a plurality of bit-planes using the bit symbols generated by the data source, each bit-plane comprising a plurality of bit-plane symbols;

scanning the bit-plane symbols of each bit-plane to generate a binary string of bit-plane symbols;

encoding the binary string of the bit-plane symbols using a statistical model, wherein the statistical model is based on statistical properties of a Laplacian probability distribution function which characterizes the data source, wherein the Laplacian probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

wherein σ is the standard deviation of the Laplacian probability distribution function.

19. (cancelled)

20. (Previously presented)   The method according to claim 11 or 12, further comprising:

determining an optimal bit-plane from the plurality of constructed bit-planes;

determining a probability assignment to each bit-plane based on its relation to the optimal bit-plane;

wherein the probability assignment to the bit-plane is used as the statistical model for encoding the binary string of bit-plane symbols.

21. (Previously presented)   The method according to claim 20, wherein the optimal bit-plane is determined by determining an integer which best satisfies

$$\phi^{2^{-L+1}} \leq \theta < \phi^{2^{-L}}$$

wherein

ϕ is defined by $\left(\dfrac{\sqrt{5}-1}{2}\right)$,

θ is defined as

$$\theta \stackrel{\Delta}{=} e^{\sqrt{\frac{2}{\sigma^2}}}.$$

22. (Previously presented)   The method according to claim 13, wherein the decoding of the binary string of bit-plane symbols is performed by an entropy decoder.

23. (Previously presented)   The method according to claim 22, wherein an arithmetic decoder is used as the entropy decoder.

24. (Previously presented)   The method according to claim 13, wherein a probability assignment to each bit-plane symbol is determined based on the Laplacian probability distribution function and is used to determine the further statistical model for decoding the binary string of bit-plane symbols.

25. (Previously presented)   The method according to claim 24, wherein the probability assignment to the bit-plane symbol is determined by

$$P_j = 1 - \left(1 + e^{-2^j \sqrt{\frac{2}{\sigma^2}}}\right)^{-1} \qquad\qquad , \; j = M\text{-}1, \; M\text{-}2, \; \ldots$$

wherein

P_j is the probability assignment to the bit-plane symbol, and

j is the bit-plane.

26. (Previously presented)   The method according to claim 13, wherein a probability assignment to each bit-plane symbol is determined based on previously decoded bit-plane symbols.

27. (Previously presented)   The method according to claim 26, wherein the probability assignment to the bit-plane symbol is determined by

$$P_j = \frac{N_a}{N} P_j^{N_a} + \left(1 - \frac{N_a}{N}\right) P_j^{ML}$$

wherein

P_j is the probability assignment to the current bit-plane symbol,

j is the bit-plane,

N_a is the number of bit-plane symbols coded until the end of the previous bit-plane,

N is the number of bit-plane symbols decoded until the current bit-plane symbol,

$P_j{}^{Na}$ is the estimation of P_j after observing N_a bit-plane symbols,

$P_j{}^{ML}$ is the maximum likelihood estimation of P_j for the current bit-plane and is defined by

$$P_j^{ML} = \frac{\sum_{j=1}^{N-N_a} b_{i,j}}{N - N_a}$$

wherein $b_{i,j}$ is the bit-plane symbol.

28.(Previously presented)   The method according to claim 27, wherein the estimation of P_j after observing N_a bit-plane symbols, $P_j{}^{Na}$, is updated by

$$P_j^{N_a} = \frac{\sqrt{P_{j+1}^{N_a}}}{\sqrt{1 - P_{j+1}^{N_a}} + \sqrt{P_{j+1}^{N_a}}}$$

wherein $P_{j+1}^{N_a}$ is the estimation of P_j from the previous bit-plane.

29.(Previously presented)   The method according to claim 24, wherein the probability assignment to the bit-plane is determined by

$$Q_j^L = \begin{cases} \dfrac{1}{1 + 2^{2^{j-L}}}, & j \geq L \\ \dfrac{1}{2}, & j < L \end{cases}$$

wherein

Q_j^L is the probability assignment of the jth bit-plane,

L is the integer representing a predetermined optimal bit-plane from the plurality of constructed bit-planes, and

j is the bit-plane.

30.(Previously presented)   The method according to claim 24, wherein the probability assignment to the bit-plane is determined by

$$Q_j^L = \begin{cases} \dfrac{1}{2^{2^{j-L}}}, j \ge L \\ \dfrac{1}{2}, j < L \end{cases}$$

wherein

Q_j^L is the probability assignment of the jth bit-plane,

L is the integer representing a predetermined optimal bit-plane from the plurality of constructed bit-planes, and

j is the bit-plane.

31.(Previously presented)   The method according to claim 25 or 27, wherein the data source is re-constructed from the bit-planes by

$$\hat{x}_i = (2s_i - 1)\left(\sum_{j=M-1}^{T} b_{i,j} 2^j + \sum_{j=T-1}^{-\infty} P_j 2^j \right),$$

wherein

$\hat{x}_i$ is the re-constructed data source,

s_i is a sign symbol of $\hat{x}_i$,

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$b_{i,j}$ is the bit-plane symbol, and

T is the bit-plane the decoded binary string of bit-plane symbols is terminated.

32.(Previously presented)   The method according to claim 29 or 30, wherein the data source is re-constructed from the bit-planes by

$$\hat{x}_i = (2s_i - 1)\left(\sum_{j=M-1}^{T} b_{i,j} 2^j + \sum_{j=T-1}^{-\infty} Q_j^L 2^j \right)$$

wherein

$\hat{x}_i$ is the re-constructed data source,

s_i is a sign symbol of $\hat{x}_i$,

$b_{i,j}$ is the bit-plane symbol, and

T is the bit-plane the decoded binary string of bit-plane symbols is terminated.

33. (Currently amended) A device for decoding an encoded binary string of bit-plane symbols, the encoded binary string of bit-plane symbols being obtained from bit symbols generated by a data source, in particular a video, still image or audio source, the device comprising:

    a decoding unit for decoding the encoded binary string of bit-plane symbols using a further statistical model to generate a further binary string of bit-plane symbols,

    a re-constructing unit for re-constructing a plurality of bit-planes comprising the bit-plane symbols using the

further binary string of bit-plane symbols, and <u>for</u>
<u>producing a decoded data representing the bit symbols</u>
<u>generated by the data source, wherein the decoded data is</u>
<u>output as the video, the still image or the audio,</u>

a further statistical model unit for providing the
further statistical model, wherein the further
statistical model is based on statistical properties of a
Laplacian probability distribution function which
characterizes the decoded data, wherein the Laplacian
probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

wherein σ is the standard deviation of the Laplacian
probability distribution function.

34. (Currently amended) A computer readable medium, having a
program recorded thereon, wherein the program is to make the
computer execute a procedure for decoding an encoded binary
string of bit-plane symbols<u>, the encoded binary string of bit-</u>
<u>plane symbols being obtained from bit symbols generated by a</u>
<u>data source, in particular a video, still image or audio source,</u>
<u>the device, the procedure</u> comprising ~~the following steps~~:

decoding the encoded binary string of bit-plane symbols
using a further statistical model to generate a further
binary string of bit-plane symbols,

re-constructing a plurality of bit-planes comprising the
bit-plane symbols using the further binary string of bit-
plane symbols, <u>producing a decoded data representing the</u>

<u>bit symbols generated by the data source, wherein the decoded data is output as the video, the still image or the audio,</u>

wherein the further statistical model is based on statistical properties of a Laplacian probability distribution function which characterizes the decoded data, wherein the Laplacian probability distribution function is defined by

$$f(x) = \frac{e^{-|x|\sqrt{\frac{2}{\sigma^2}}}}{\sqrt{2\sigma^2}}$$

wherein σ is the standard deviation of the Laplacian probability distribution function.

35. (cancelled)